

**Prior Art**

100

**Figure 1**



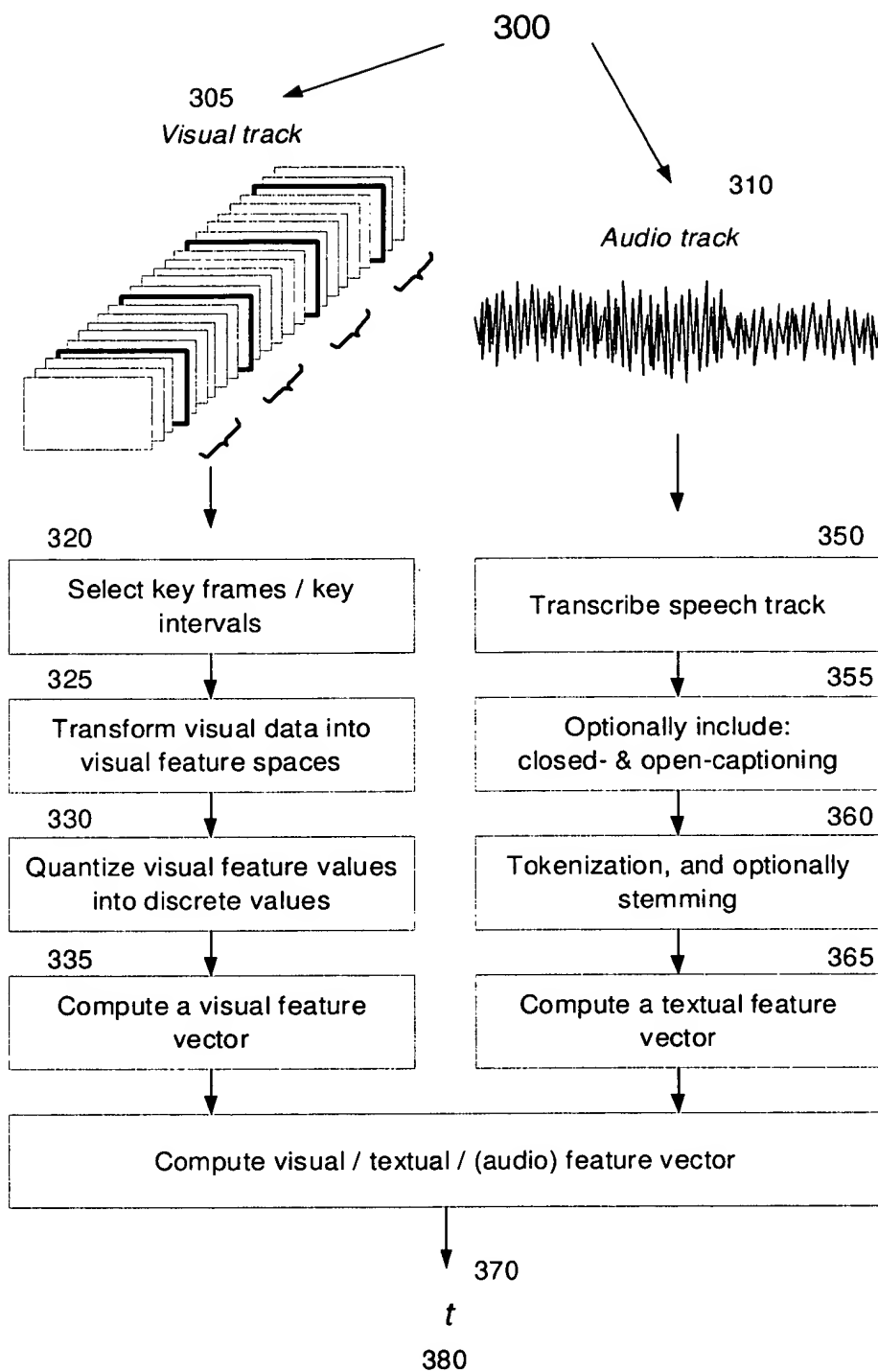


Figure 3

400

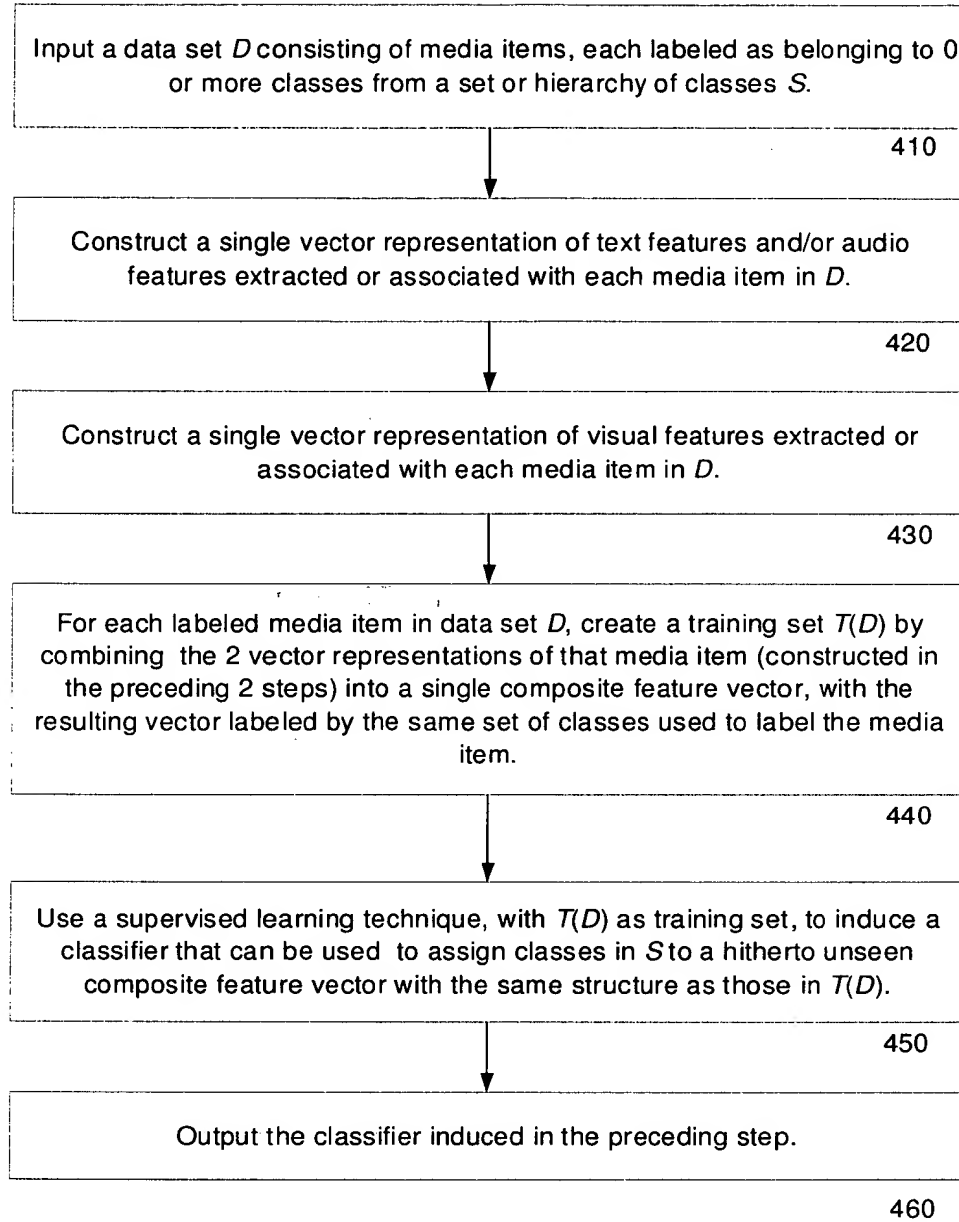


Figure 4

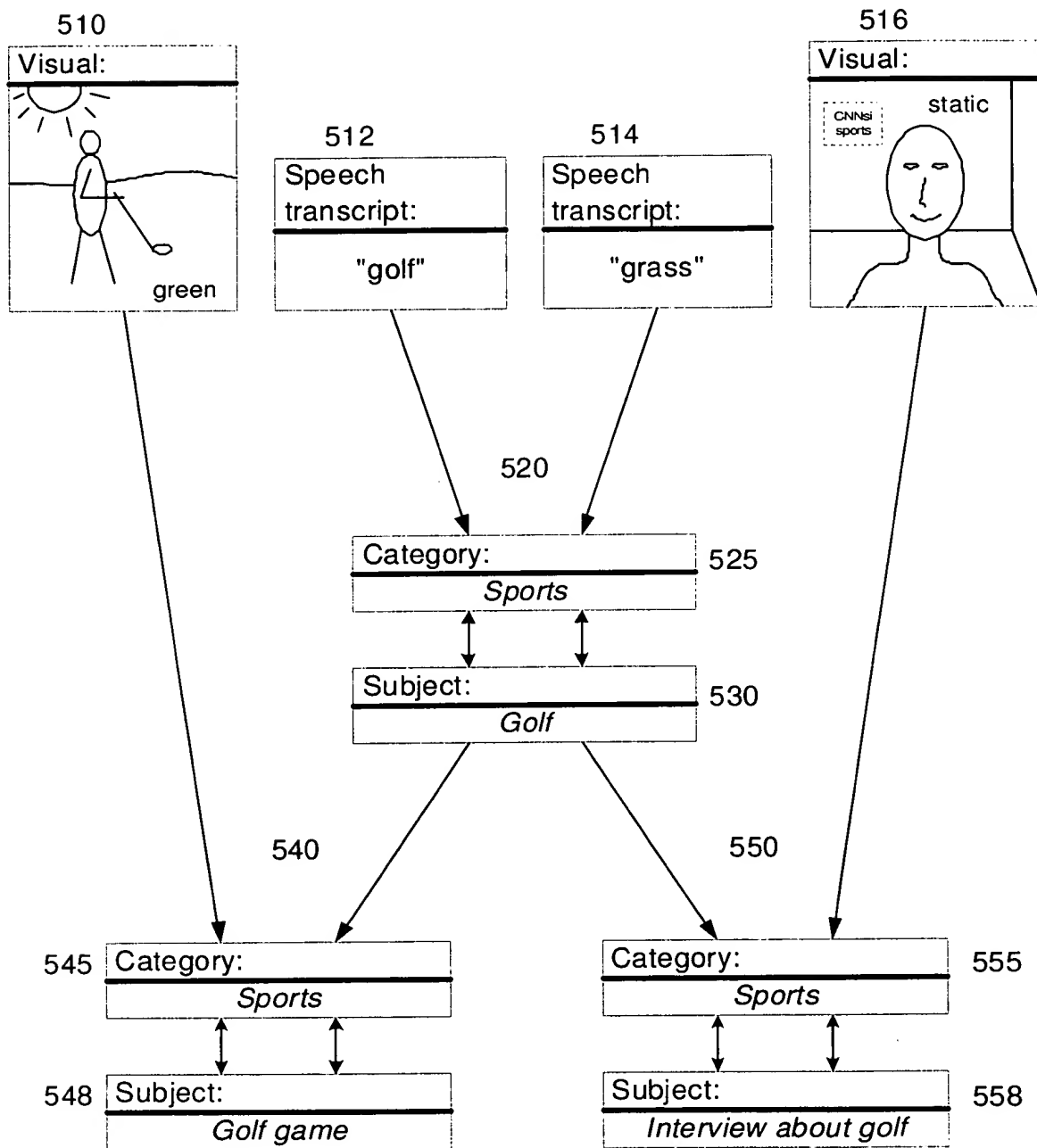
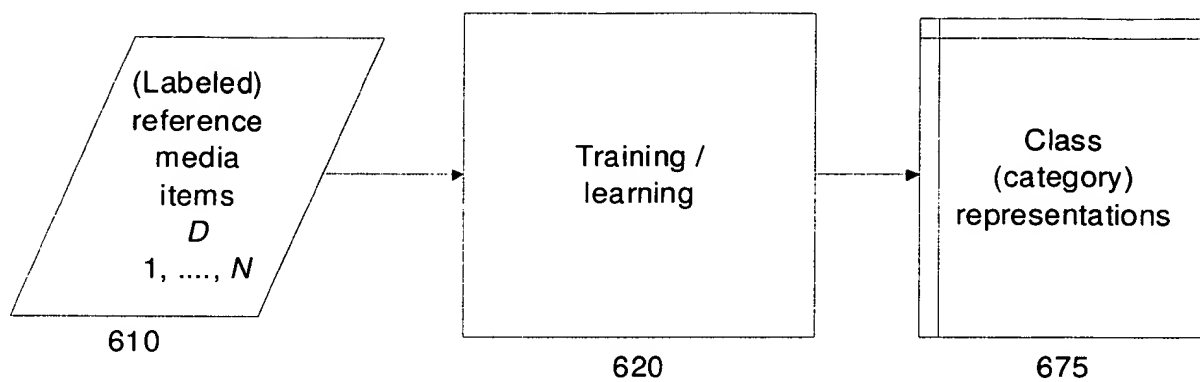
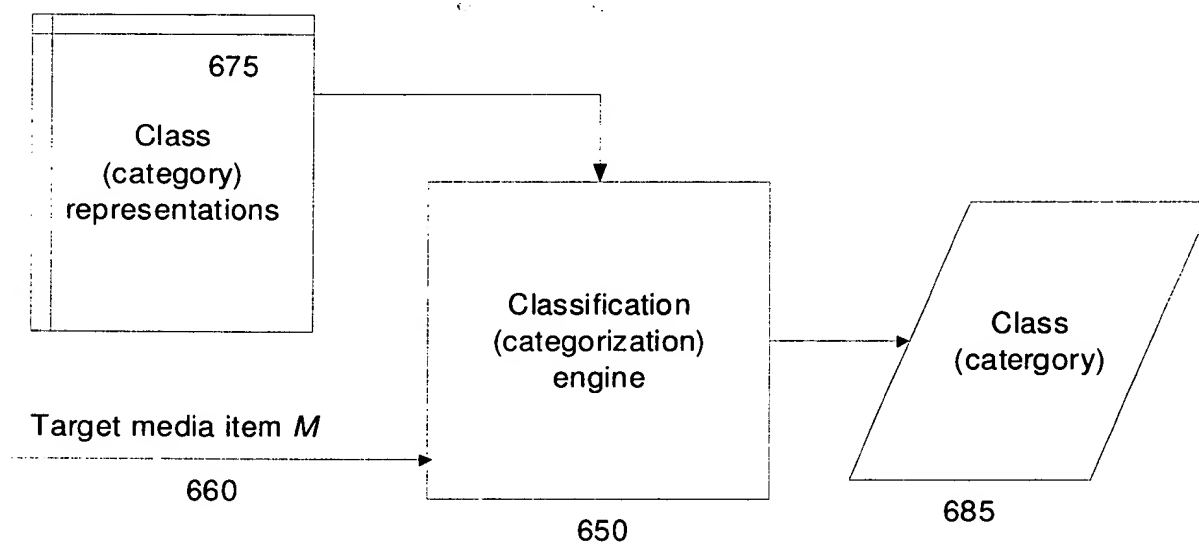


Figure 5



Training / learning phase 610

**A**



Classification phase 615

**B**

**Figure 6**

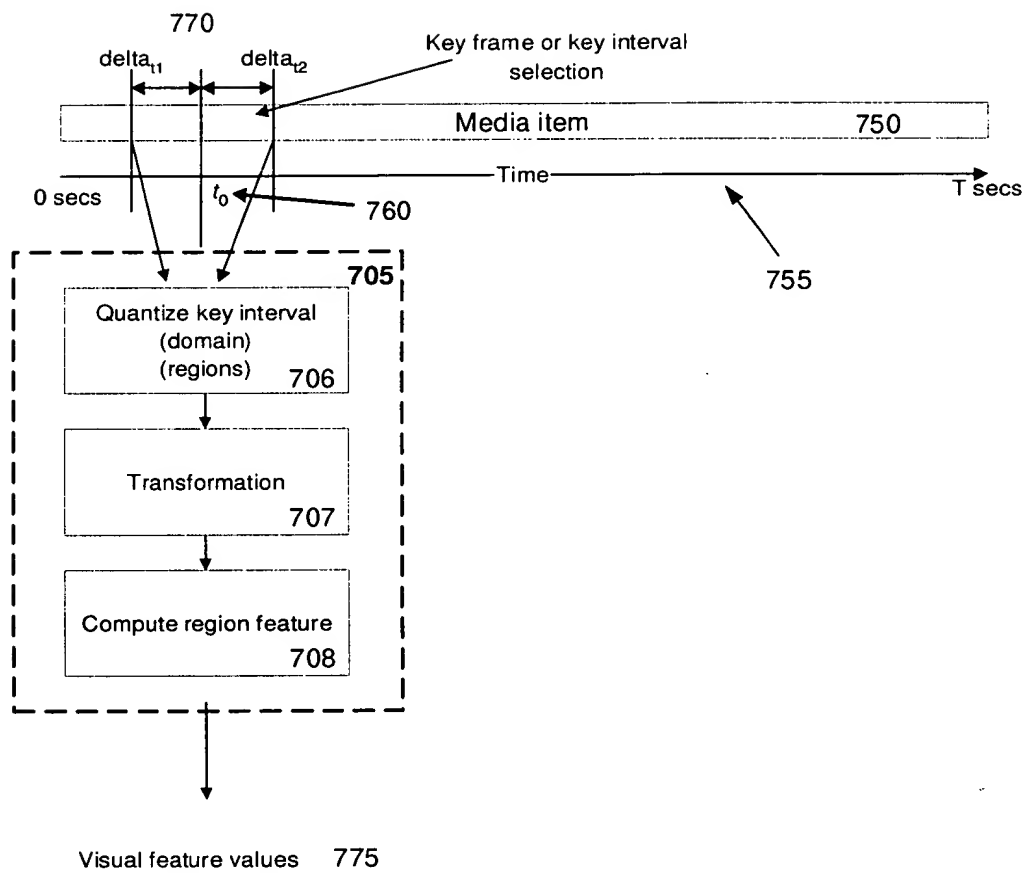


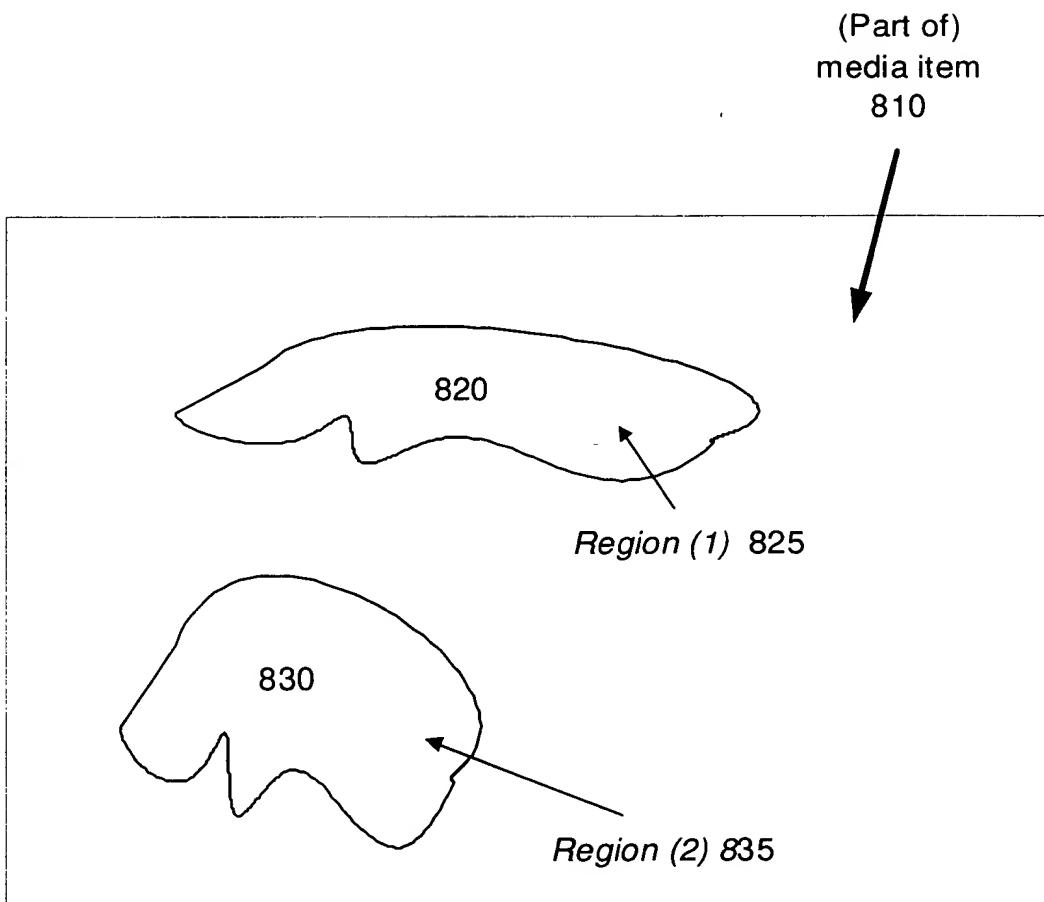
Figure 7A

Diagram illustrating a video processing system for key frame selection:

- Media Item (750):** A horizontal bar representing the video content over time from **0 secs** to **T secs**.
- Key frame or interval selection:** Two time intervals,  $\delta t_{t1}$  and  $\delta t_{t2}$ , are selected around a central time point  $t_0$ .
- Processing Block (705):** A dashed box containing three sequential steps:
  - Transformation (717):** Receives input from the selected time intervals.
  - Quantize domain (regions) (716):** Processes the transformed data.
  - Compute region feature (708):** Computes features from the quantized domain.
- Visual feature values (775):** The final output of the system.
- Labels:**
  - 755:** Points to the Media Item bar.
  - 760:** Points to the time axis.

### Figure 7B





**Figure 8**

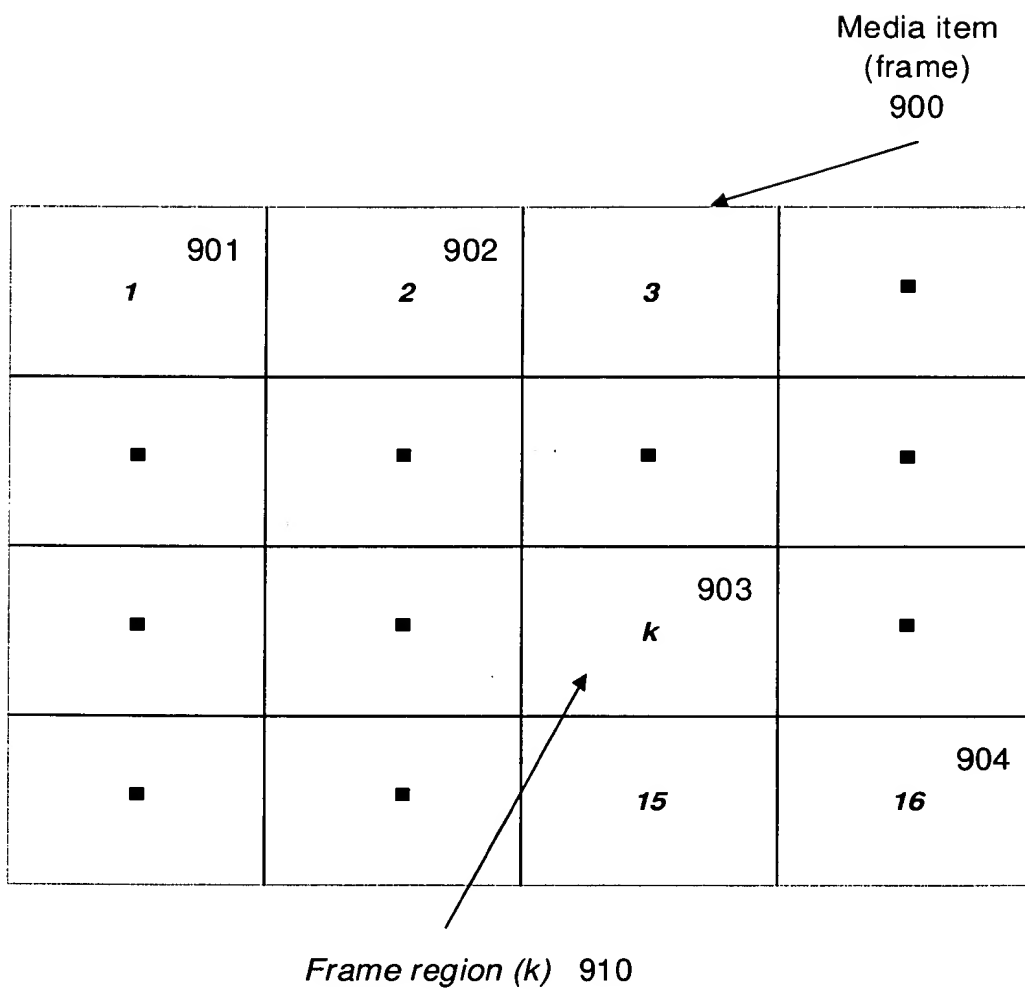


Figure 9

FIG. 9A

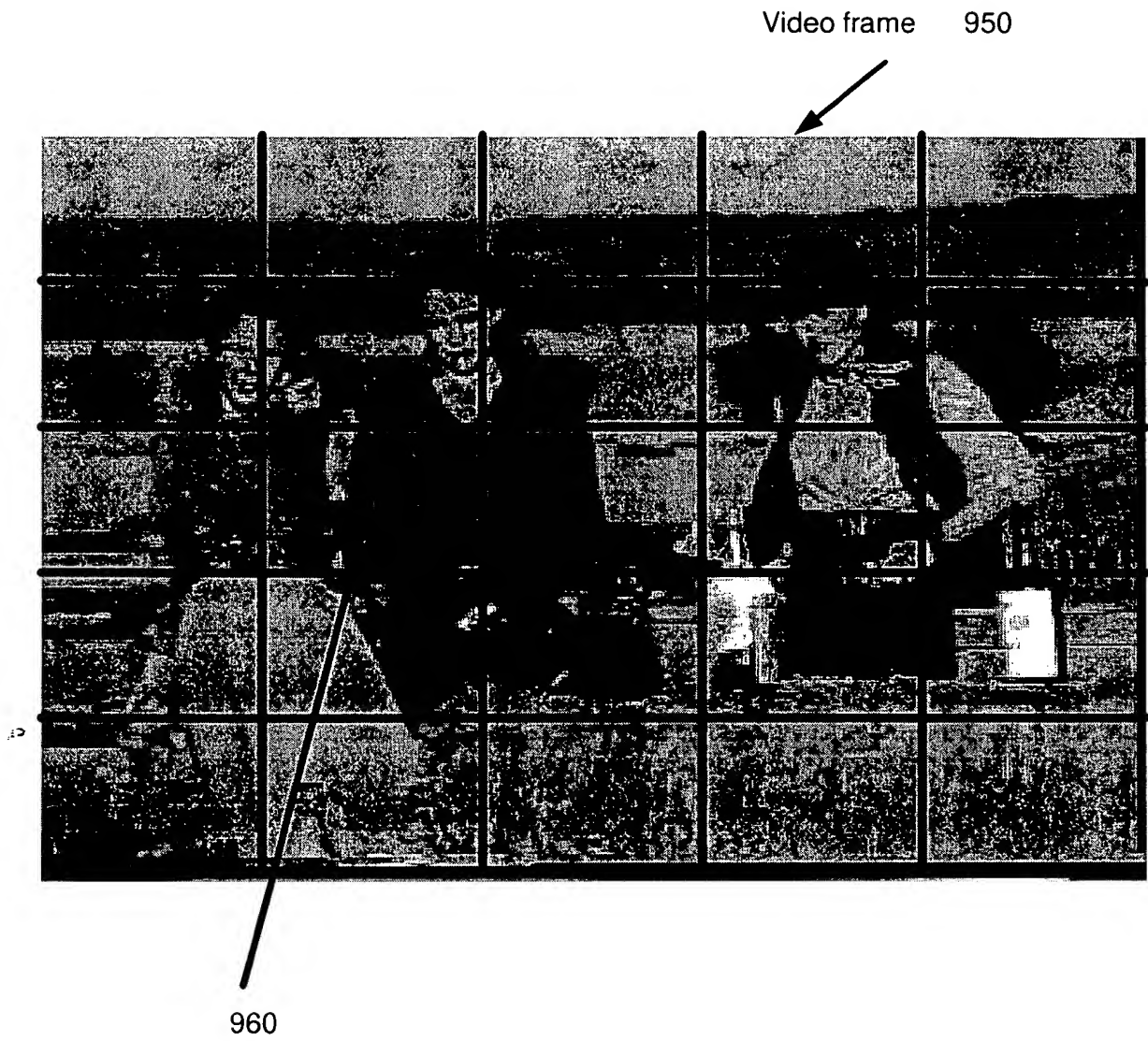
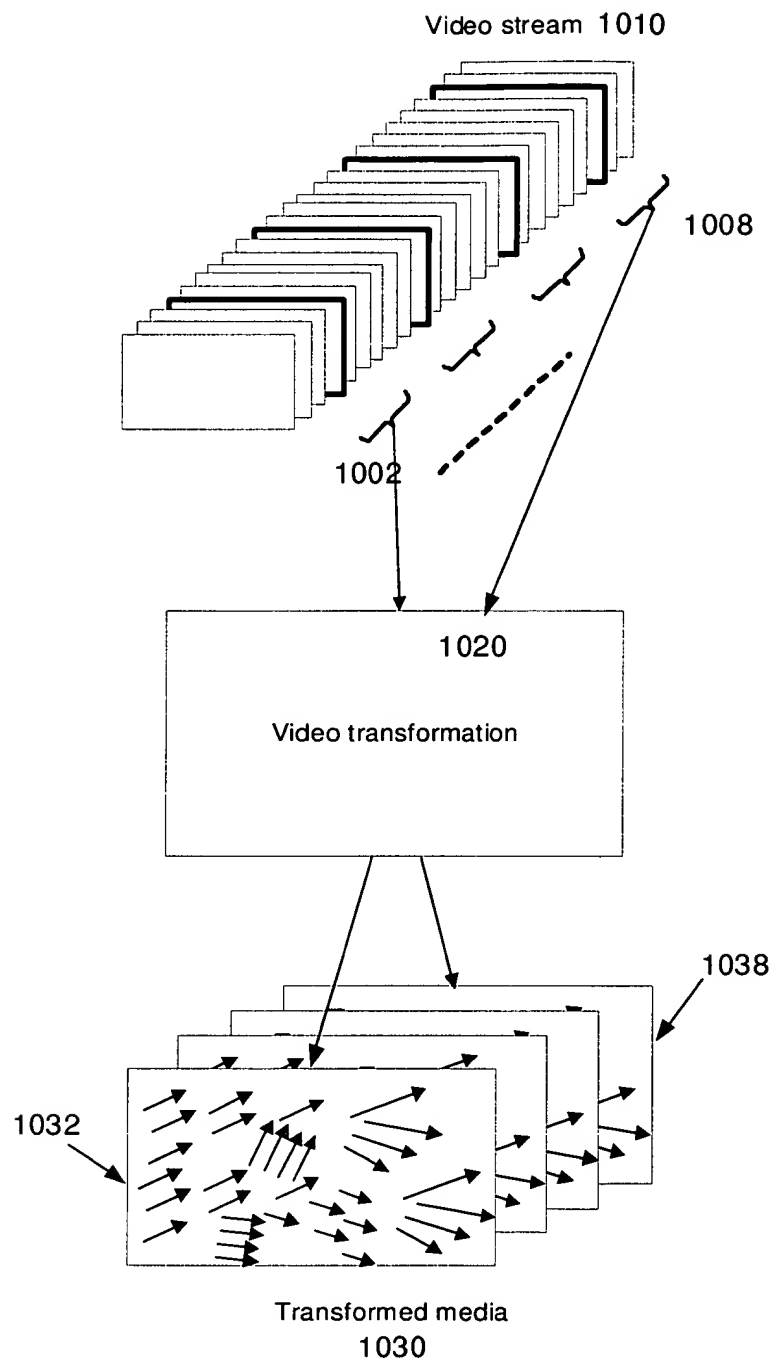


Figure 9A



**Figure 10**

FIG. 11A

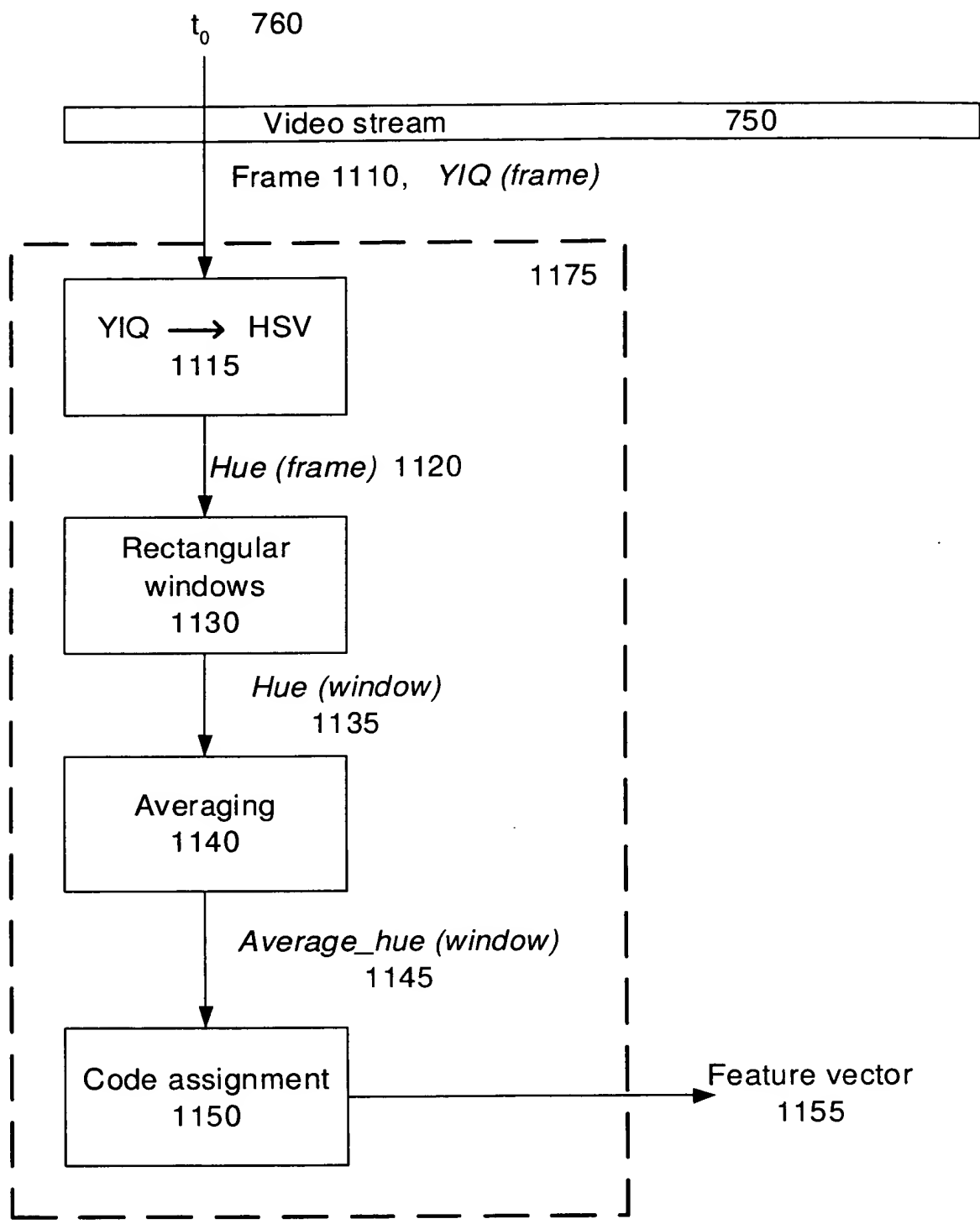
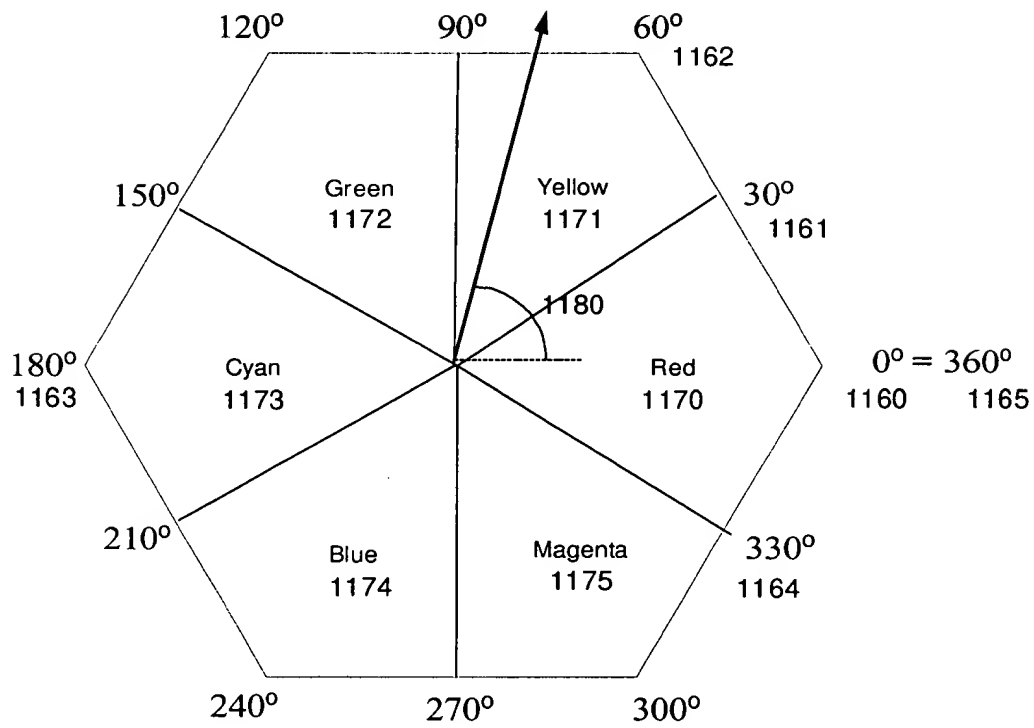


Figure 11A



Hue quantization (1180)

Color range		Code	Color	
330 - 30	degrees	0	Red	(1170)
30 - 90	degrees	1	Yellow	(1171)
90 - 150	degrees	2	Green	(1172)
150 - 210	degrees	3	Cyan	(1173)
210 - 270	degrees	4	Blue	(1174)
270 - 330	degrees	5	Magenta	(1175)

Figure 11B

1200 1210 1220 1230 1240 1250 1260

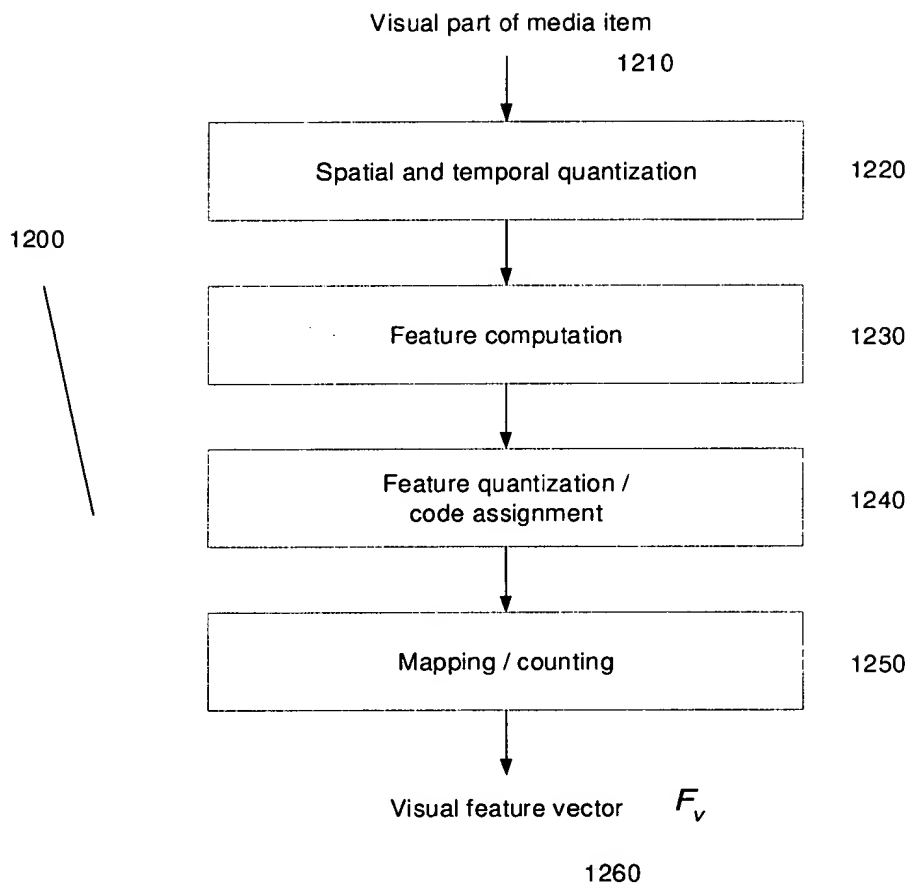


Figure 12

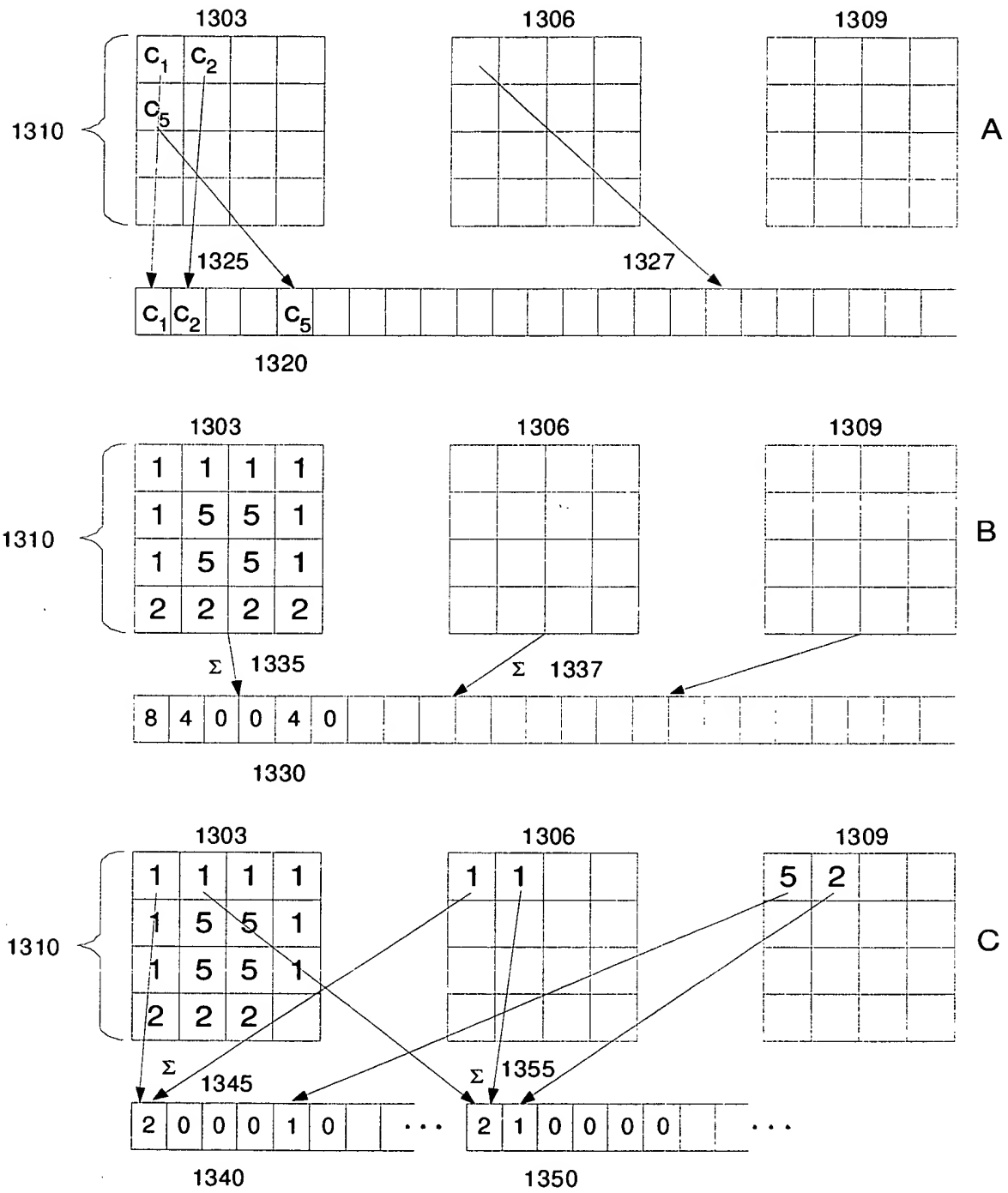


Figure 13



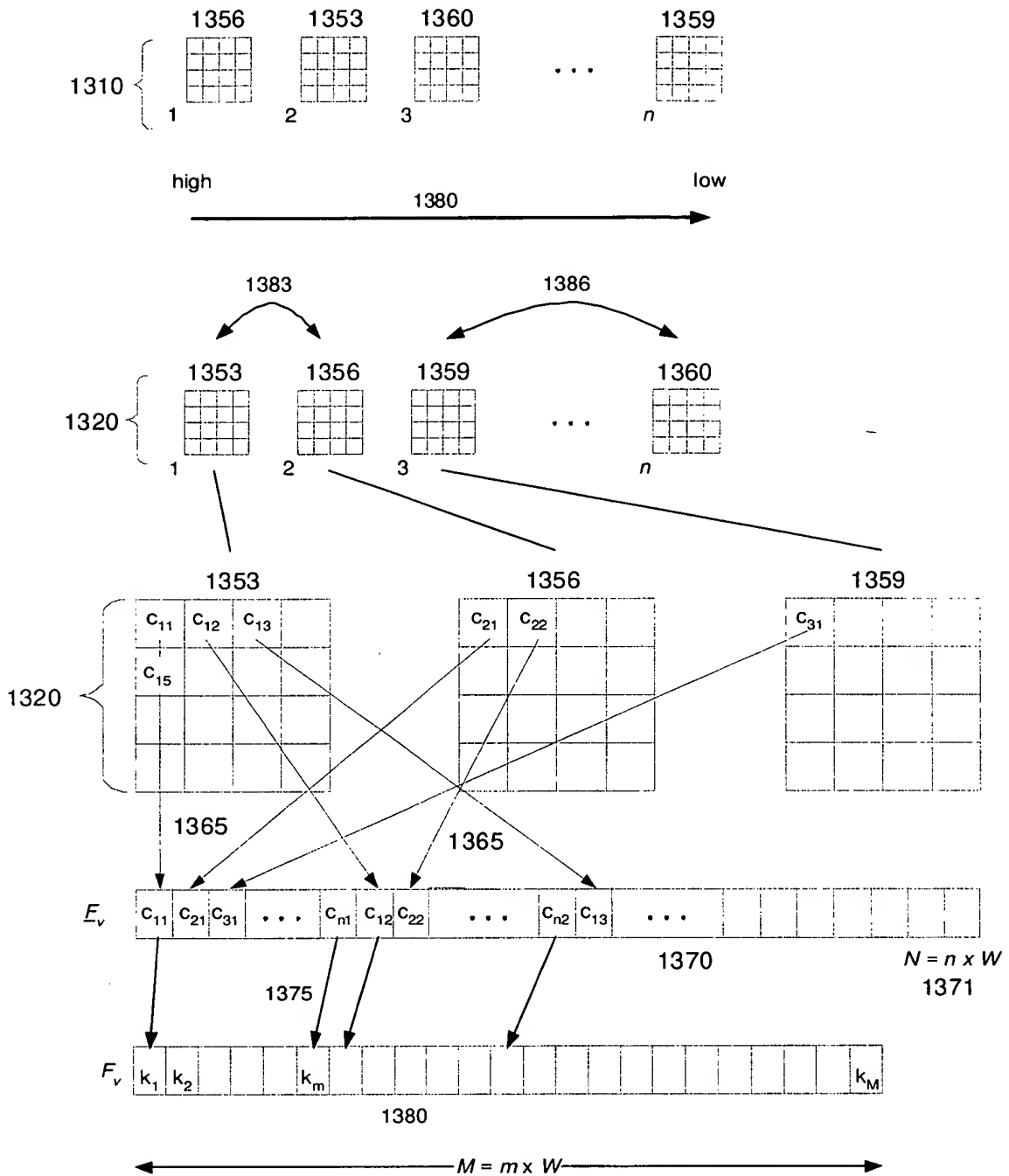


Figure 13D

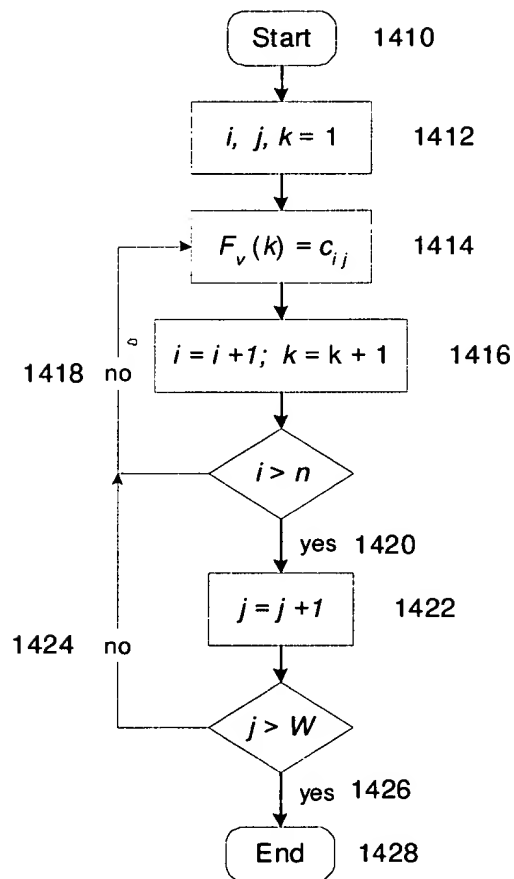
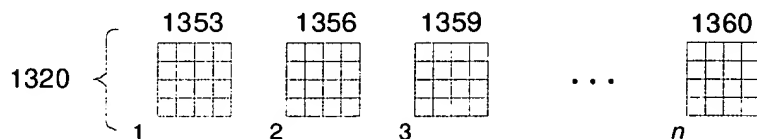
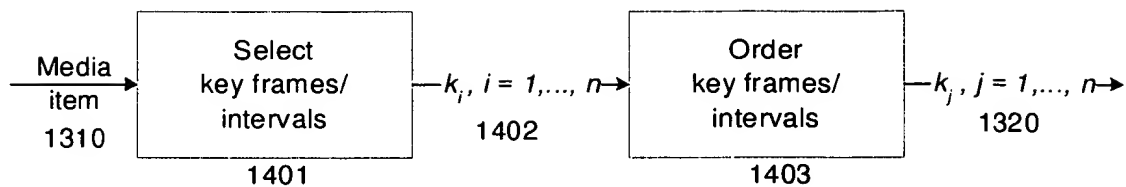


Figure 14A

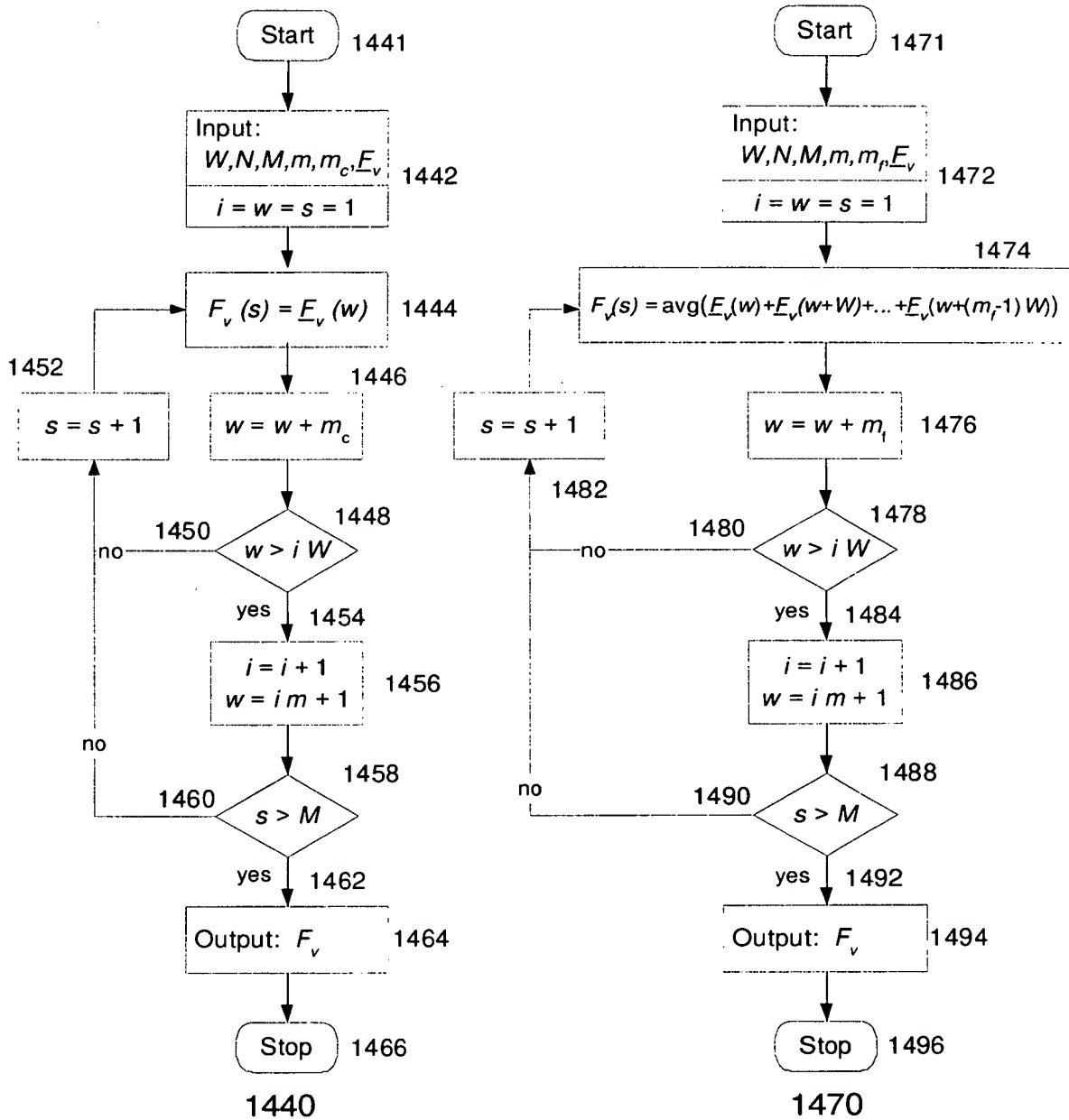
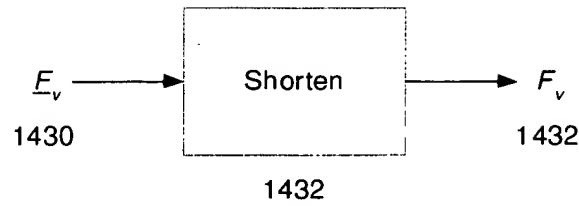
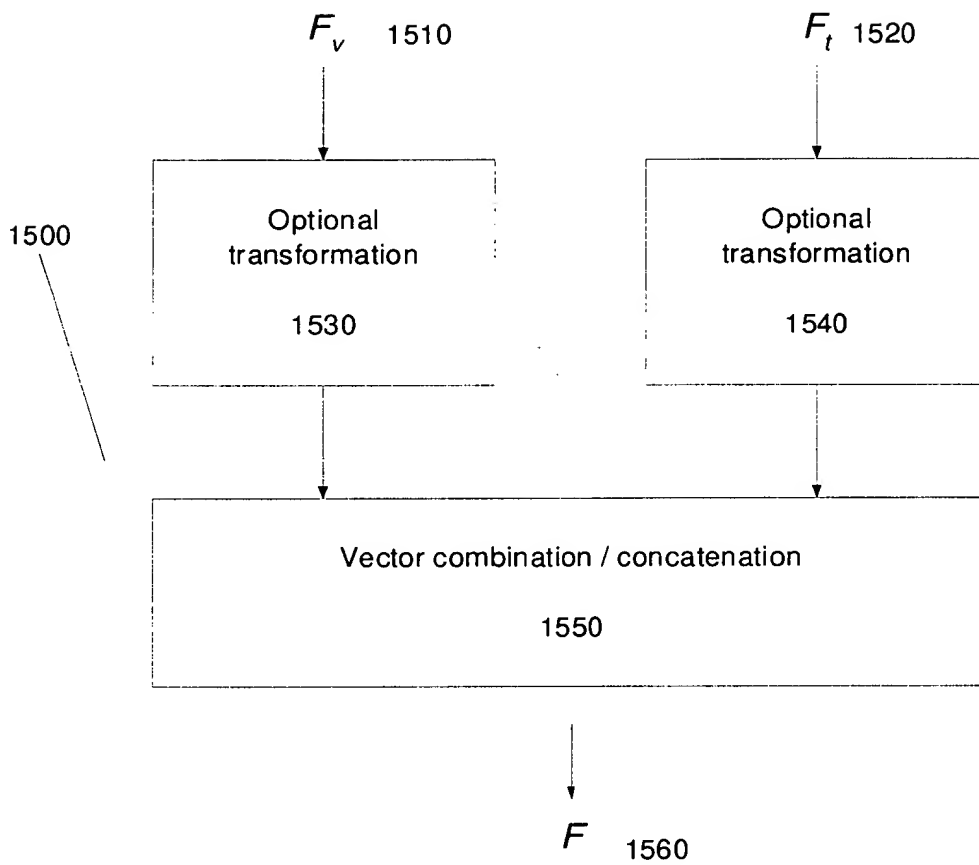


Figure 14B



**Figure 15**

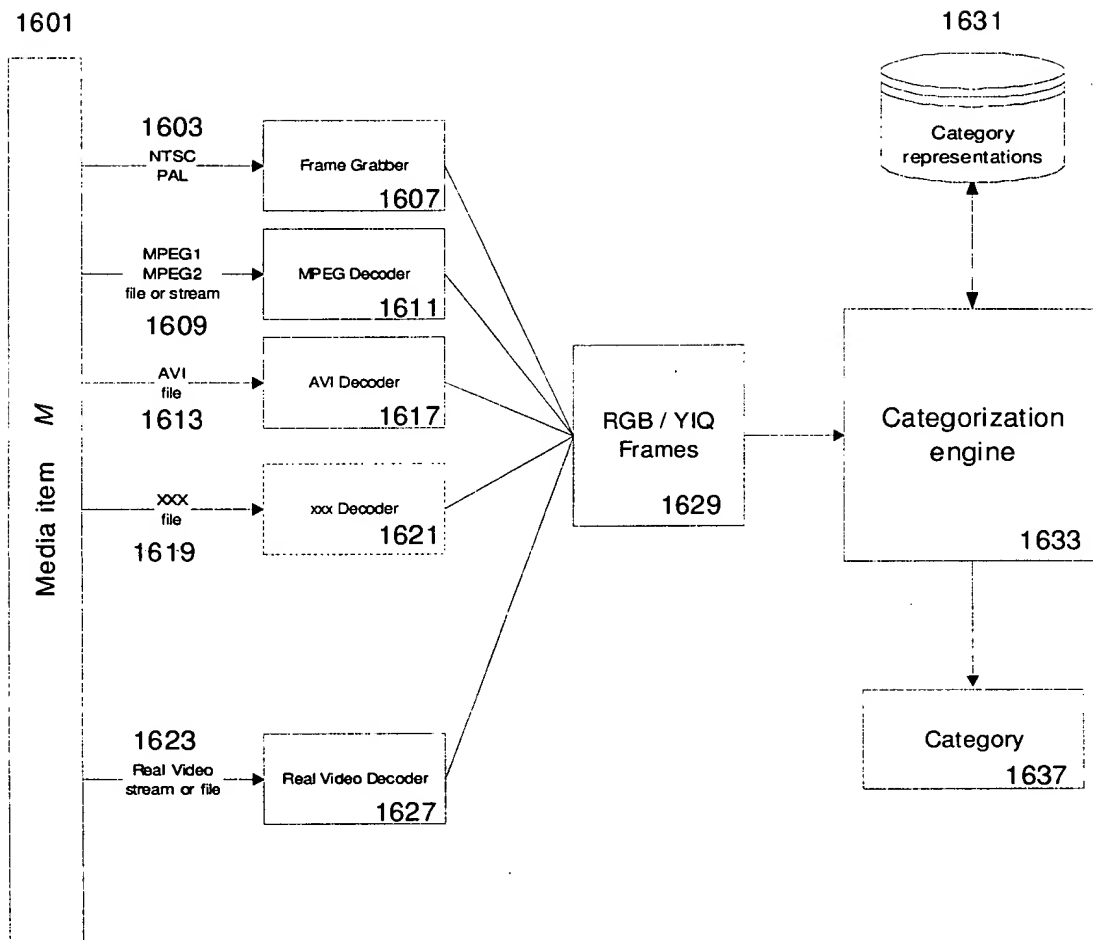
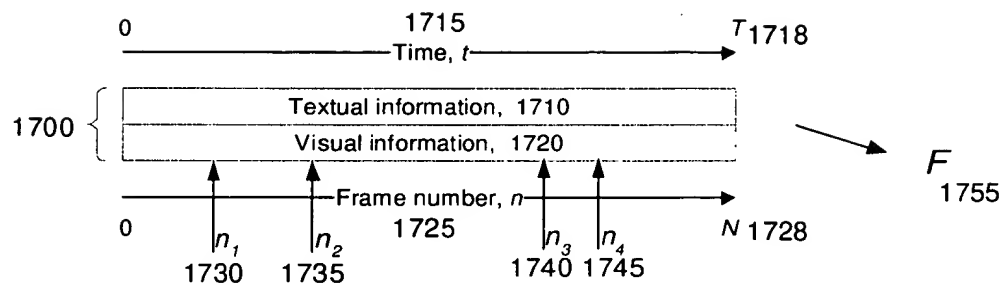
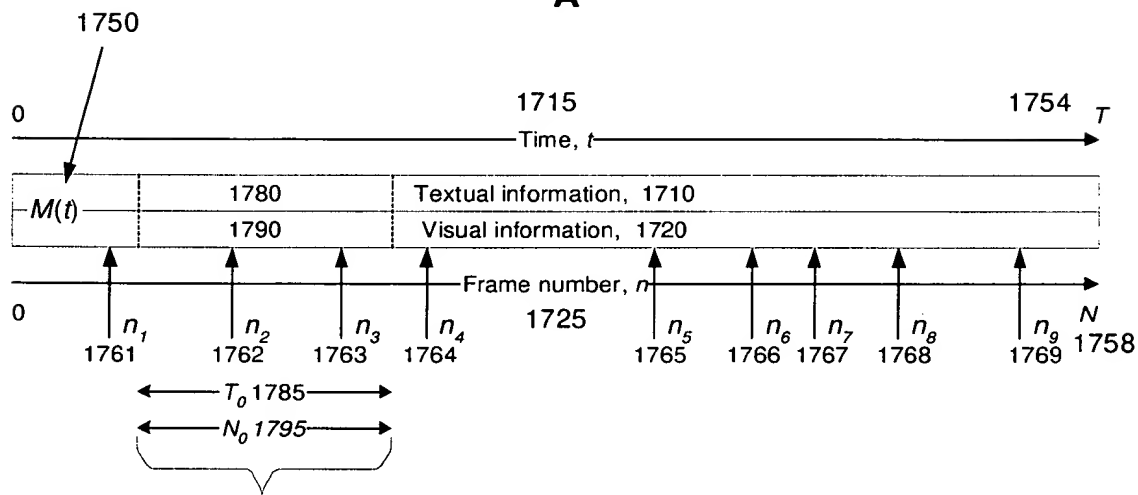


Figure 16



**A**

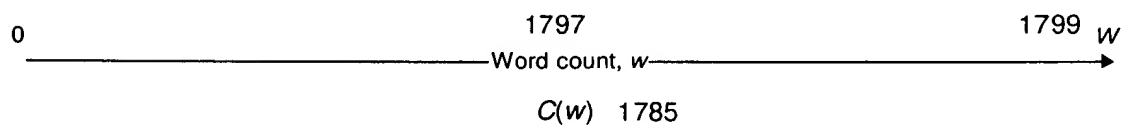


**B**

$F(n), F(t)$

1775

$C(n), C(t)$   
1780



**C**

**Figure 17**

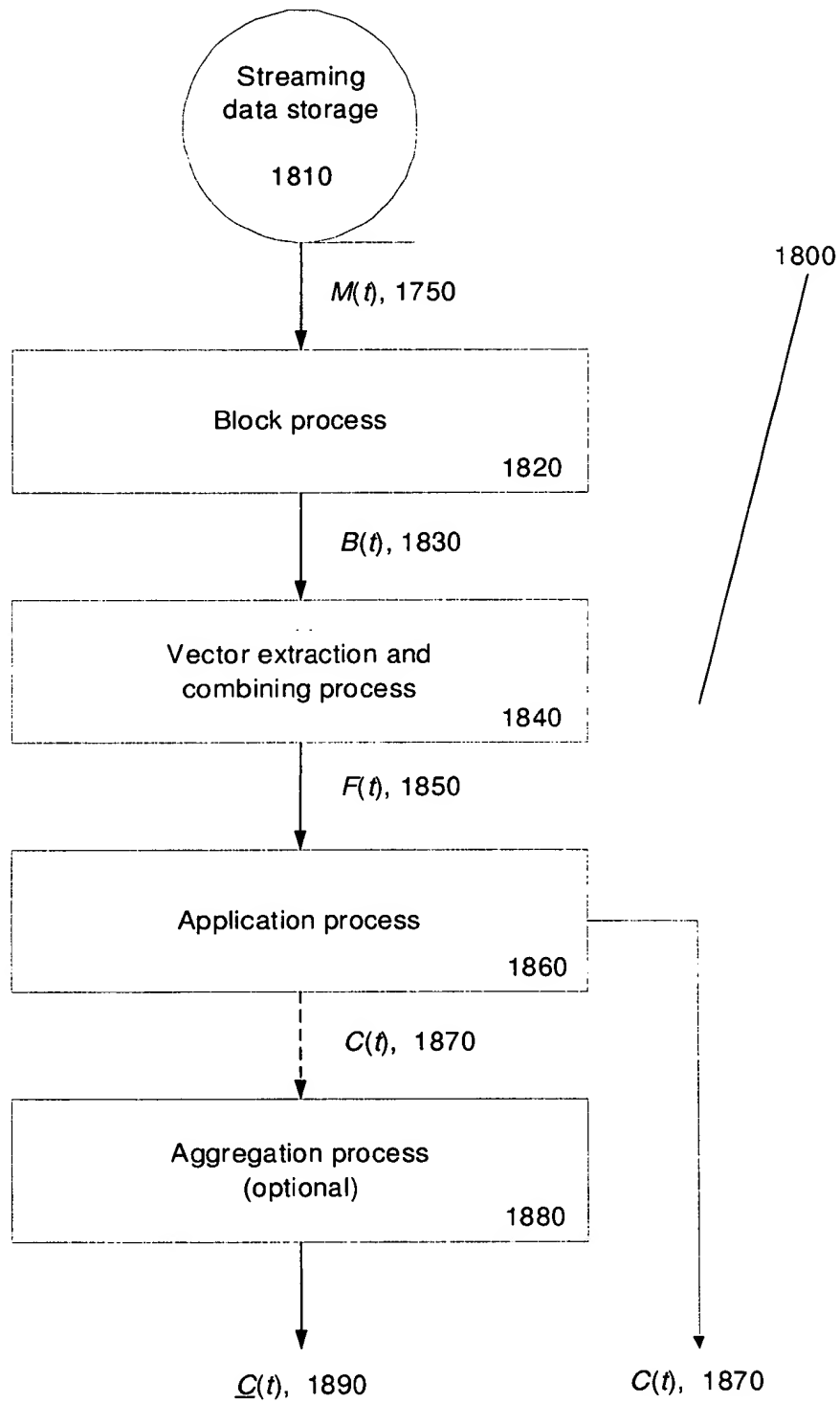
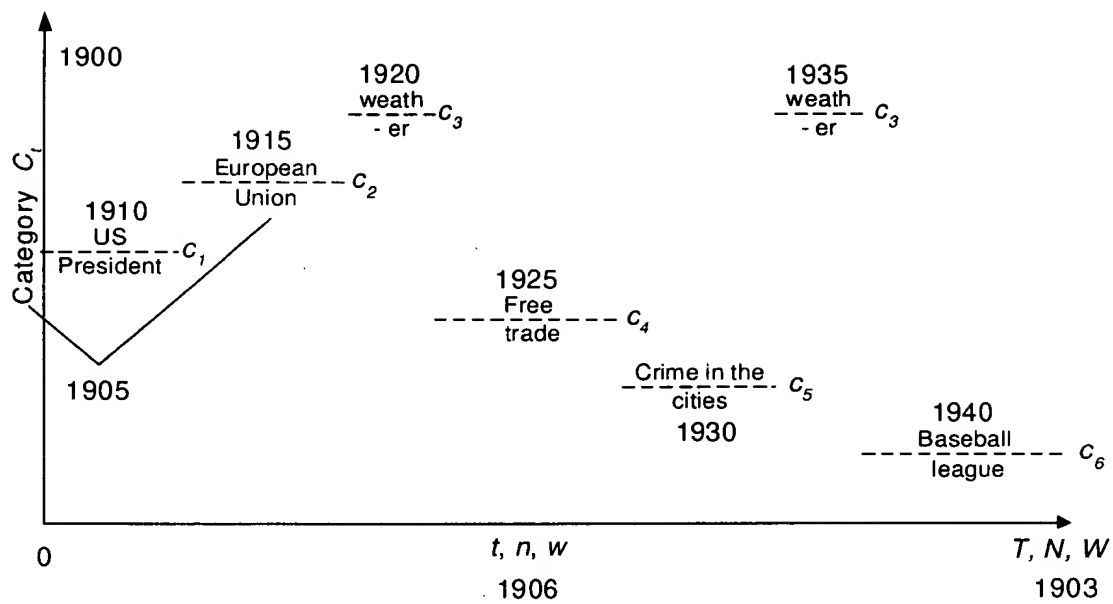
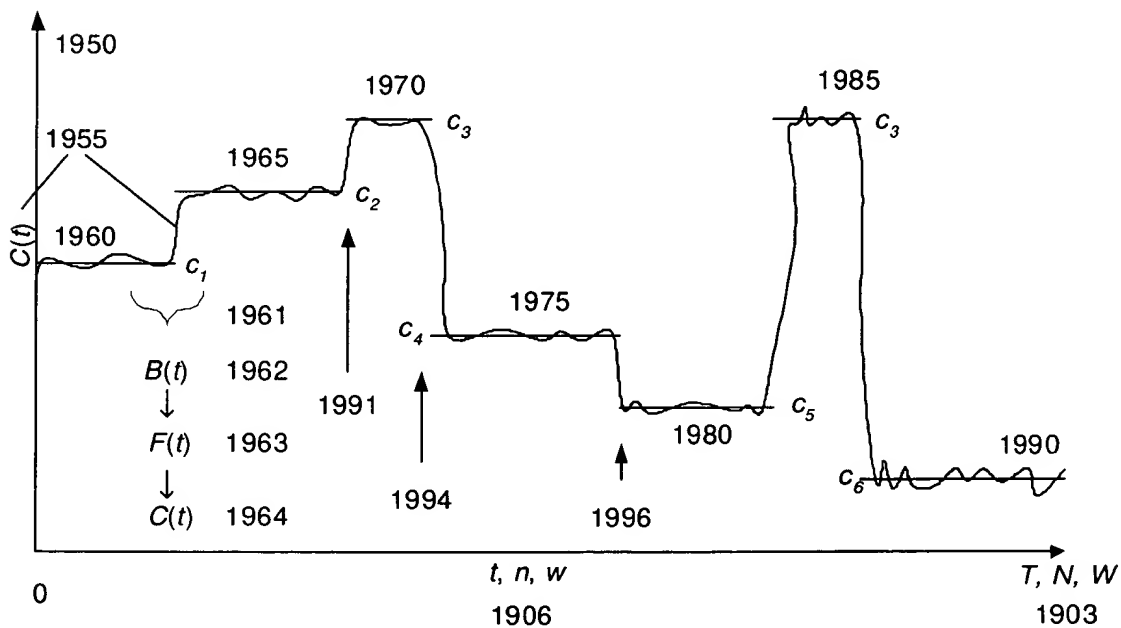


Figure 18



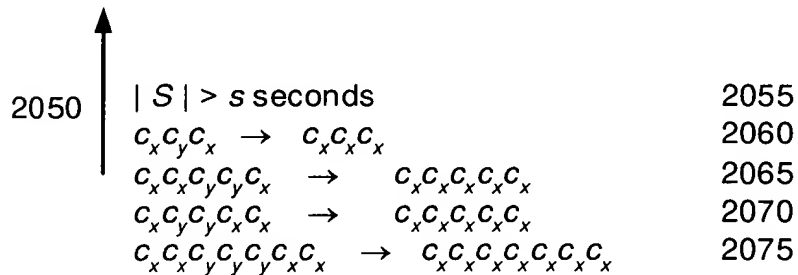
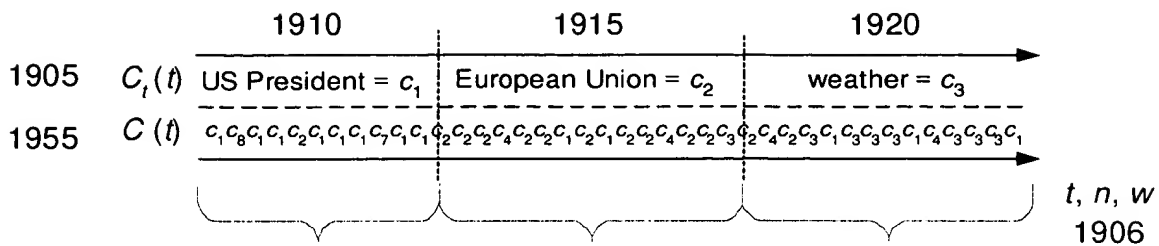
A



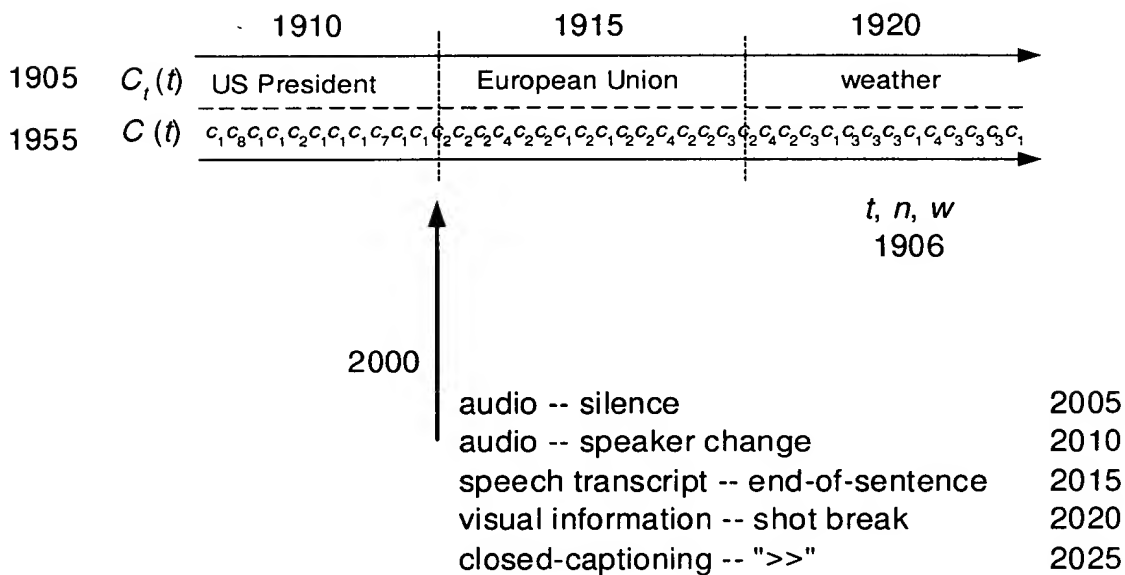
B

Figure 19





A



B

Figure 20

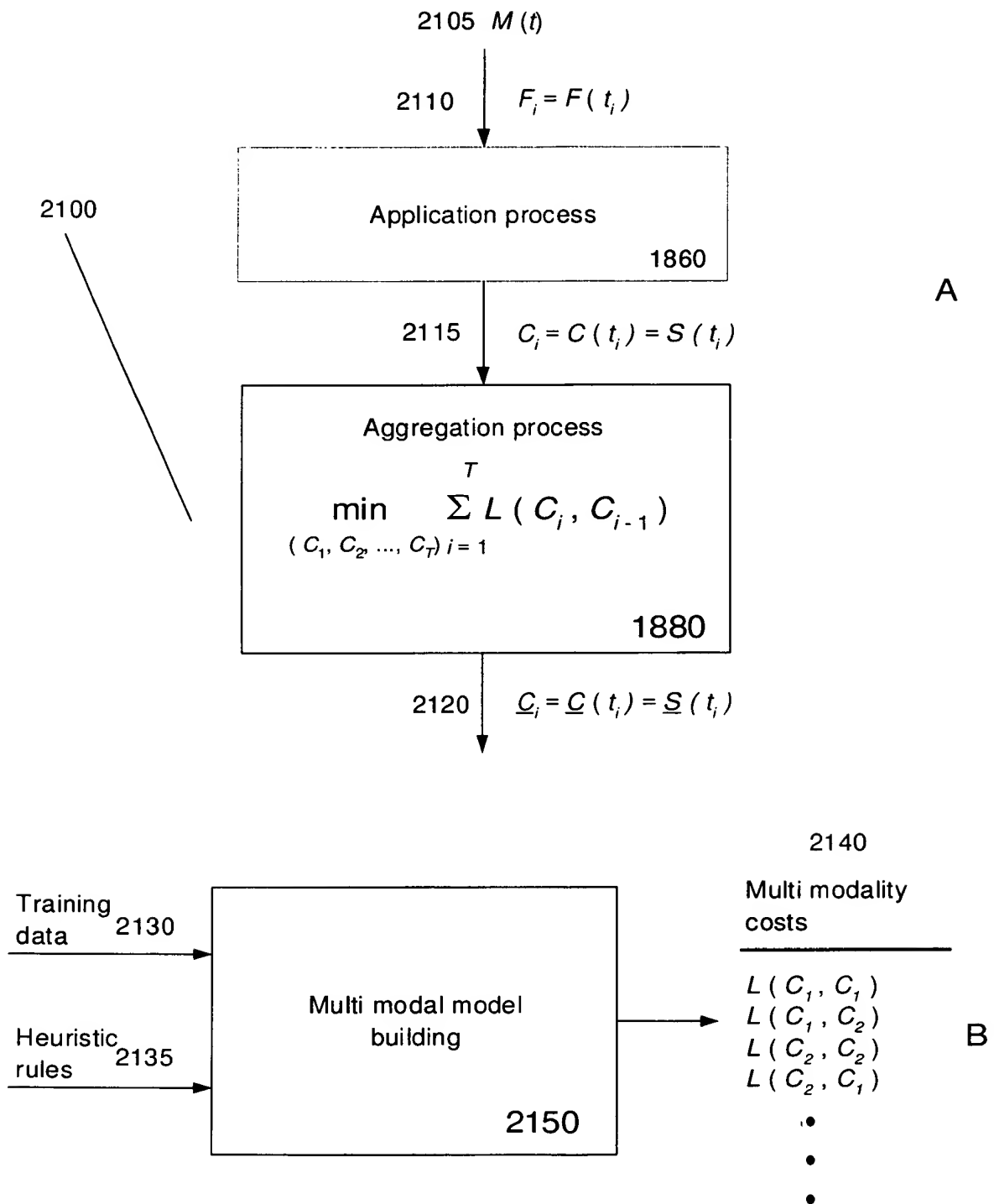
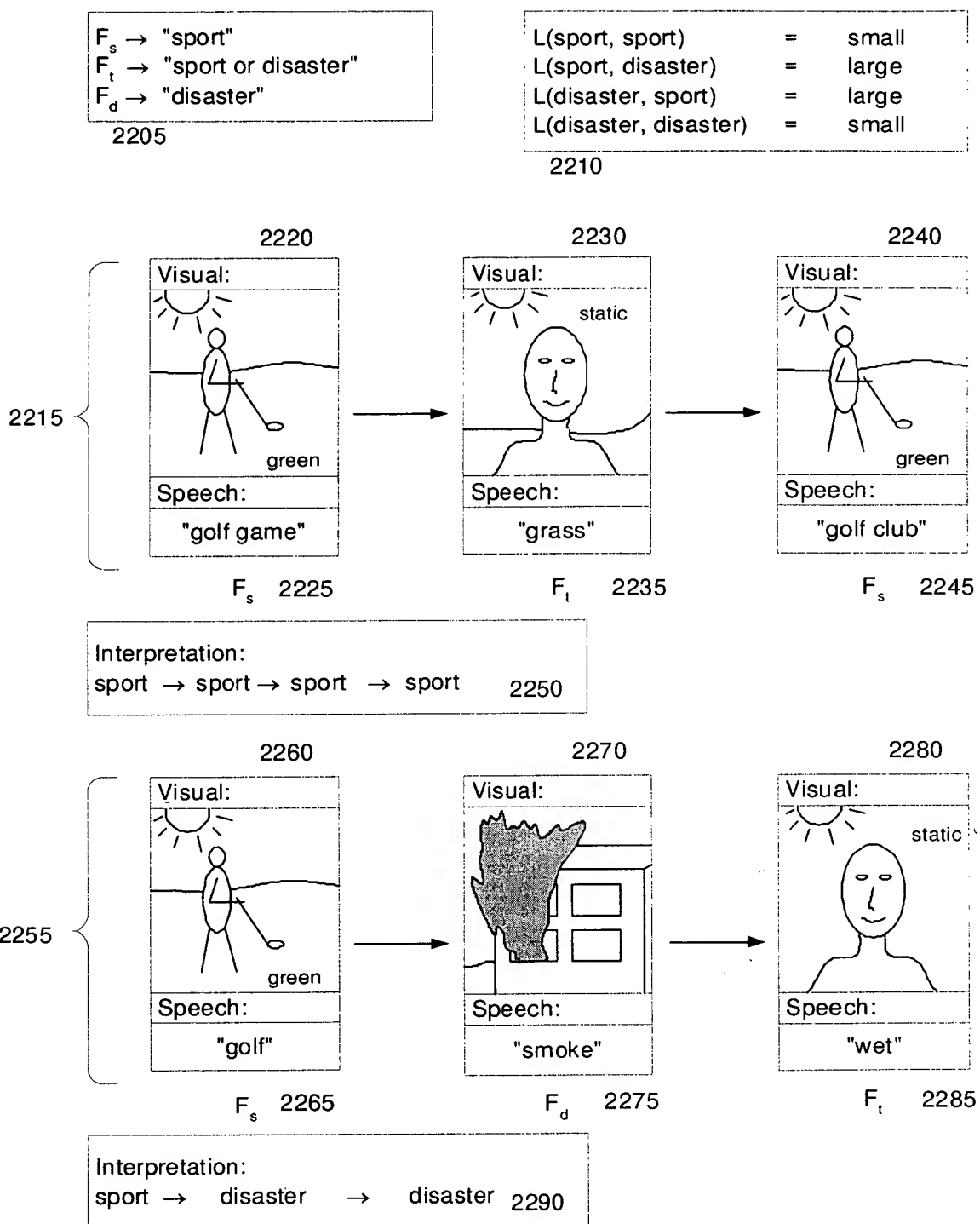


Figure 21



2220

Visual:  
  
green

Speech:  
"golf game"

$F_s$  2225

2230

Visual:  
  
static

Speech:  
"grass"

$F_t$  2235

2240

Visual:  
  
green

Speech:  
"golf club"

$F_s$  2245

2215

Interpretation:  
sport  $\rightarrow$  sport  $\rightarrow$  sport  $\rightarrow$  sport

2250

2260

Visual:  
  
green

Speech:  
"golf"

$F_s$  2265

2270

Visual:  


Speech:  
"smoke"

$F_d$  2275

2280

Visual:  
  
static

Speech:  
"wet"

$F_t$  2285

2255

Interpretation:  
sport  $\rightarrow$  disaster  $\rightarrow$  disaster

2290

Figure 22